

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 Claim 1 (original): A solid-state image sensing
2 apparatus having a plurality of output channels,
3 wherein a first driving mode and a second driving
4 mode in which pixel signals of pixels in the same image
5 sensing area are read out can freely be set, and control
6 is executed to change the number of output channels to be
7 used between the first driving mode and the second
8 driving mode.

1 Claim 2 (original): An apparatus according to claim 1,
2 wherein in at least one of the first driving mode and the
3 second driving mode, a phase of a read timing of pixel
4 signals of pixels adjacent in a horizontal direction is
5 shifted by a predetermined amount.

1 Claim 3 (original): An apparatus according to claim 1,
2 wherein in the first driving mode, signals of two pixels
3 adjacent in a horizontal direction are output in parallel
4 from two output channels, and in the second driving mode,
5 signals of 2×2 pixels adjacent in the horizontal
6 direction and a vertical direction are output in parallel
7 from four output channels, respectively.

1 Claim 4 (original): A solid-state image sensing
2 apparatus having color filters with a predetermined array
3 and a plurality of output channels,
4 wherein pixel signals of pixels in the same color
5 phase of color phase codings defined by the color filters

6 are output in parallel from the same output channels
7 while changing the number of output channels.

1 Claim 5 (original): A solid-state image sensing
2 apparatus having color filters with a predetermined
3 array, a plurality of output channels, an X-address
4 register, and a Y-address register,

5 wherein the X-address register and the Y-address
6 register are controlled so as to, for pixels in one of an
7 entire image sensing area and a block area, parallelly
8 read out pixel signals of pixels having the same color
9 relationship in color phase codings defined by the color
10 filters continuously or discretely from the same output
11 channels in accordance with a control signal while
12 changing the number of output channels.

1 Claim 6 (original): A solid-state image sensing
2 apparatus having four output channels,

3 wherein one of two-system parallel outputs for a
4 pair of colors, which uses two of the output channels,
5 and single-color four-system parallel outputs using the
6 four output channels is set, and control is executed to
7 read out pixel signals of pixels in an arbitrary area of
8 an entire image sensing range continuously or discretely
9 in a predetermined direction while changing the number of
10 output channels.

1 Claim 7 (original): An apparatus according to claim 4,
2 wherein read timings of the pixel signals output in
3 parallel from said plurality of output channels have a
4 phase shift for at least one pair of different
5 chrominance signals.

1 Claim 8 (original): An apparatus according to claim 5,
2 wherein read timings of the pixel signals output in
3 parallel from said plurality of output channels have a
4 phase shift for at least one pair of different
5 chrominance signals.

1 Claim 9 (original): An apparatus according to claim 6,
2 wherein read timings of the pixel signals output in
3 parallel from said plurality of output channels have a
4 phase shift for at least one pair of different
5 chrominance signals.

1 Claim 10 (original): An apparatus according to claim 4,
2 further comprising color filters having a Bayer matrix.

1 Claim 11 (original): An apparatus according to claim 5,
2 further comprising color filters having a Bayer matrix.

1 Claim 12 (original): An apparatus according to claim 6,
2 further comprising color filters having a Bayer matrix.

1 Claim 13 (currently amended): A method of parallelly
2 reading out image data from a plurality of output
3 channels of a solid-state image sensing apparatus having
4 photoelectric conversion units arranged in a
5 two-dimensional array and a plurality of output channels;
6 comprising

7 assigning said plurality changing the number of
8 output channels to be used in accordance with an
9 externally input control signal,

10 sequentially addressing the photoelectric conversion
11 units,
12 transferring to said plurality of assigned output
13 channels pixel signals output from the addressed
14 photoelectric conversion units, and
15 outputting in parallel image signals from said
16 plurality of assigned output channels at timings having a
17 predetermined phase difference.

1 Claim 14 (original): A solid-state image sensing
2 apparatus comprising:
3 a photoelectric conversion unit in which a plurality
4 of pixels are two-dimensionally arrayed;
5 a vertical scanning circuit which selects pixels of
6 the photoelectric conversion unit;
7 transfer switches each of which is arranged at one
8 of one end and other end of a corresponding one of output
9 signal lines running from the pixels and driven and
10 controlled by a transfer signal which is commonly input
11 to alternate columns;
12 line memories which store pixel signals transferred
13 from the pixels through the transfer switches;
14 a horizontal scanning circuit which outputs a
15 horizontal selection signal;
16 horizontal selection switches which are driven and
17 controlled by the horizontal selection signal; and
18 output channels which read out the pixel signals
19 through the horizontal selection switches,
20 wherein a first driving mode and a second driving
21 mode in which pixel signals of pixels in the same image
22 sensing area are read out can freely be set, and control
23 is executed to change the number of output channels to be

24 used between the first driving mode and the second
25 driving mode.

1 Claim 15 (original): An apparatus according to claim 14,
2 wherein in at least one of the first driving mode and the
3 second driving mode, a phase of a read timing of pixel
4 signals of pixels adjacent in a horizontal direction is
5 shifted by a predetermined amount.

1 Claim 16 (original): A solid-state image sensing
2 apparatus comprising:

3 color filters having a Bayer matrix;
4 a photoelectric conversion unit in which a plurality
5 of pixels are two-dimensionally arrayed;
6 a vertical scanning circuit which selects pixels of
7 the photoelectric conversion unit;
8 transfer switches each of which are arranged at one
9 of one end and other end of a corresponding one of output
10 signal lines running from the pixels and driven and
11 controlled by a transfer signal which is commonly input
12 to alternate columns;
13 line memories which store pixel signals transferred
14 from the pixels through the transfer switches;
15 a horizontal scanning circuit which outputs
16 a horizontal selection signal;
17 horizontal selection switches in which two adjacent
18 switches are driven and controlled by the same horizontal
19 selection signal;
20 one output channel which reads out the pixel signals
21 through odd-numbered horizontal selection switches; and

22 the other output channel which reads out the pixel
23 signals through even-numbered horizontal selection
24 switches,

25 wherein pixel signals of pixels in the same color
26 phase of color phase codings defined by the color filters
27 are output in parallel from the same output channels.

1 Claim 17. (original): An apparatus according to claim 16,
2 wherein one of two-system parallel outputs for a pair of
3 colors, which uses two of the output channels, and
4 single-color four-system parallel outputs using the four
5 output channels is set, and control is executed to read
6 out pixel signals of pixels in an arbitrary area of an
7 entire image sensing range continuously or discretely in
8 a predetermined direction.

1 Claim 18 (new): A solid-state image sensing apparatus
2 comprising:
3 an image sensing area;
4 a plurality of output channels;
5 a first driving mode for reading pixel signals of
6 pixels in the image sensing area wherein the first
7 driving mode selects a first set of output channels;
8 a second driving mode for reading pixel signals of
9 pixels in the image sensing area wherein the second
10 driving mode selects a second set of output channels;
11 a control circuit which sets one of the first
12 driving mode and the second driving mode based on an
13 externally input control signal, wherein the input
14 control signal may be freely set,

15 wherein the number of output channels in the first
16 set is different from the number of output channels in
17 the second set.